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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,509	11/30/2005	Fumitsugu Fukuyo	046124-5388	4531

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EXAMINER

ULLAH, ELIAS

ART UNIT	PAPER NUMBER
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2892

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08/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,509	Applicant(s) FUKUYO ET AL.	
	Examiner ELIAS ULLAH	Art Unit 2892	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 23-32, 40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 33-39 and 42-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/11/2007, 7/24/2007, 9/13/2007, 12/21/2007,</u> | 6) <input type="checkbox"/> Other: _____. |
| <u>2/11/2008, 3/25/2008, 6/2/2008, 7/9/2008, 2/12/2007, 1/9/2007, 6/20/2006,</u> | |
| <u>4/20/2006, 4/4/2006, 2/28/2006, 12/08/2005.</u> | |

DETAILED ACTION

This office action is in response to an election restriction filed on 6/02/2008.

Election/Restrictions

1. Applicant's election of claims 1-22, 33-39 and 42-45 in the reply filed on 6/02/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-22, 33-39 and 42-45 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 14-56 of U.S. co-pending application serial number 10/507,392. Although the conflicting claims are not

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identical, they are not patentably distinct from each other because the limitation as recited in the claims of the instant application are recited in the noted claims of the '392 Application. At the time the invention was made; it would have been obvious to a person having ordinary skill in the art would appreciate the synonymy between a " laminate disposed in the front face of substrate" in co-pending application '392 and "a sheet bonded to substrate by a die bonding resin" in the instant application "509. The remaining limitations are identical for cutting a semiconductor substrate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-22, 33-39, 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawada (US 6,770,544) in view of Sekiya (US. 6,344,402).

With regard to claims 1, 33, 35-36, 42 and 44, Sawada shows a method (Figs 13(A)- 14(C)) of cutting a semiconductor substrate, the method comprising the steps of: irradiating a semiconductor substrate (W, in Fig. 13(A)) having a sheet (S) bonded thereto by way of a die-bonding resin layer (AD) with laser light (L, in Fig. 14(A) while locating a light-converging point within the semiconductor substrate (Fig. 14(A)), so as to form a modified region (G in Fig. 14(B)) within the semiconductor substrate, and causing the modified region to form a part which is intended to be cut (Fig. 14(C)).

The recitation of “modified region caused by photon absorption” within the semiconductor substrate and causing the modified region to form a part which is intended to be cut is only a statement of the inherent properties of the modified region. The irradiating laser and adhesive sheet, recited in Sawada in (col. 2, lines 60-67 and col. 2, lines 20-25 and col. 8, lines 55-65) is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Sawada fails to disclose specifically “expanding the sheet” after the step of forming the part which is intended to be cut.

Sekiya teaches “expanding the sheet” after the step of forming the part which is intended to be cut (Figs. 8A-8B, Col. 4, lines 18-25). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use

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expandable sheet teaching of Sekiya in the method of cutting a semiconductor substrate of Sawada, because an expandable sheet help to separate the die from a substrate as taught by Sekiya in (col. 4, lines 1-25).

With regard to claims 3-4, Sawada shows a method (Figs 13(A)- 14(C)) of cutting a semiconductor substrate, the method comprising the steps of: irradiating a semiconductor substrate (W, in Fig. 13(A)) having a sheet (S) bonded thereto by way of a die-bonding resin layer (AD) with laser light (L, in Fig. 14(A) while locating a light-converging point within the semiconductor substrate (Fig. 14(A)), so as to form a modified region (G in Fig. 14(B)) within the semiconductor substrate, and causing the modified region to form a part which is intended to be cut (Fig. 14(C)).

Sawada fails to disclose specifically "expanding the sheet" after the step of forming the part which is intended to be cut.

Sekiya teaches "expanding the sheet" after the step of forming the part which is intended to be cut (Figs. 8A-8B, Col. 4, lines 18-25). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use expandable sheet teaching of Sekiya in the method of cutting a semiconductor substrate of Sawada, because an expandable sheet help to separate the die from a substrate as taught by Sekiya in (col. 4, lines 1-25).

With regard to claims 5-6, Sawada shows the modified region (G in Fig. 14(B)) is a molten processed region (Col. 2, lines 64-65).

With regard to claims 7, and 9-10 Sawada shows a fracture is caused to reach a front face (Col. 2, lines 1-3 and col. 3, lines 4-6) of the semiconductor substrate (W) on

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the laser light entrance side from the part which is intended to be cut acting as a start point (G).

With regard to claims 11, 13-15 and 17-18, Sawada shows a fracture is caused to react a front face of the semiconductor substrate on the laser light entrance side (Col. 2, lines 1-3 and col. 3, lines 4-6) and a rear face on the side opposite therefrom from the part which is intended to be cut acting as a start point (Fig. 14(C)).

With regard to claims 19, 21-22, 37, 39, 43 and 45, Sawada shows a method of cutting a semiconductor substrate (Figs. 13(A) -14(C), the method comprising the steps of: irradiating a semiconductor substrate W in (Fig. 13(A)) having a sheet (S) bonded thereto by way of a die- bonding resin layer (AD) with laser light (L) while locating a light-converging point within the semiconductor substrate (Fig. 14(A)) and the modified region a molten processed region (col. 2, lines 64-66).

The recitation of “generating a stress” and “modified region caused by photon absorption” after the step of forming the part which is intended to be cut is only a statement of the inherent properties of the modified region. The irradiating laser and adhesive sheet, recited in Sawada in (col. 2, lines 60-67 and col. 2, lines 20-25, col. 8, lines 55-65) is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Sawada fails to disclose specifically “expanding the sheet” after the step of forming the part which is intended to be cut.

Sekiya teaches “expanding the sheet” after the step of forming the part which is intended to be cut (Figs. 8A-8B, Col. 4, lines 18-25). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use expandable sheet teaching of Sekiya in the method of cutting a semiconductor substrate of Sawada, because an expandable sheet help to separate the die from a substrate as taught by Sekiya in (col. 4, lines 1-25).

With regard to claims 2 and 34, Sawada teaches a method of cutting a semiconductor substrate (Figs 13(A)- 14(C)), the method comprising the steps of: irradiating a semiconductor substrate (W, in Fig. 13(A)) having a sheet (S) bonded thereto by way of a die-bonding resin layer (AD) with laser light while locating a light-converging point within the semiconductor substrate(Fig. 14(A)) and a pulse width of 1 μ s or less (Col. 4, lines 51-53), so as to form a modified region including a molten processed region (col. 2, lines 64-65) within the semiconductor substrate (W), and causing the modified region including the molten processed region to form a part which is intended to be cut (Figs. 14(A)-14(C);

Sawada fails to disclose specifically “expanding the sheet” after the step of forming the part which is intended to be cut.

Sekiya teaches “expanding the sheet” after the step of forming the part which is intended to be cut (Figs. 8A-8B, Col. 4, lines 18-25). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use

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expandable sheet teaching of Sekiya in the method of cutting a semiconductor substrate of Sawada, because an expandable sheet help to separate the die from a substrate as taught by Sekiya in (col. 4, lines 1-25).

Sawada also fails to disclose specific laser light to from a modified region under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point.

Sawada discloses a general laser light to from a modified region under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and pulse width (col. 3, lines 35-50 see also US Ref. US 6,376,797 in col. 3, lines 25-50 for mere facts). Accordingly, it would have been obvious to one of ordinary skill in art to use teaching Sawada in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. MPEP 2144.05.

With regard to claim 8, Sawada shows a fracture is caused to reach a front face (Col. 2, lines 1-3 and col. 3, lines 4-6) of the semiconductor substrate (W) on the laser light entrance side from the part which is intended to be cut acting as a start point (G).

With regard to claims 12 and 16, Sawada shows a fracture is caused to react a front face of the semiconductor substrate on the laser light entrance side (Col. 2, lines 1-3 and col. 3, lines 4-6) and a rear face on the side opposite therefrom from the part which is intended to be cut acting as a start point (Fig. 14(C)).

With regard to claims 20 and 38 Sawada teaches a method of cutting a semiconductor substrate (Figs 13(A)- 14(C)), the method comprising the steps of: irradiating a semiconductor substrate (W, in Fig. 13(A)) having a sheet (S) bonded thereto by way of a die-bonding resin layer (AD) with laser light while locating a light-converging point within the semiconductor substrate(Fig. 14(A)) and a pulse width of 1 μ s or less (Col. 4, lines 51-53), so as to form a modified region including a molten processed region (col. 2, lines 64-65) within the semiconductor substrate (W), and causing the modified region including the molten processed region to form a part which is intended to be cut (Figs. 14(A)-14(C);

The recitation of “generating a stress” which is intended to be cut is only a statement of the inherent properties of the modified region. The irradiating laser and adhesive sheet, recited in Sawada in (col. 2, lines 60-67 and col. 2, lines 20-25) is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.01.

Sawada fails to disclose specifically “expanding the sheet” after the step of forming the part which is intended to be cut.

Sekiya teaches “expanding the sheet” after the step of forming the part which is intended to be cut (Figs. 8A-8B, Col. 4, lines 18-25). At the time the invention was

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made; it would have been obvious to a person having ordinary skill in the art to use expandable sheet teaching of Sekiya in the method of cutting a semiconductor substrate of Sawada, because an expandable sheet help to separate the die from a substrate as taught by Sekiya in (col. 4, lines 1-25).

Sawada also fails to disclose specific laser light to from a modified region under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point.

Sawada discloses a general laser light to from a modified region under a condition with a peak power density of at least 1×10^8 (W/cm²) at the light-converging point and pulse width (col. 3, lines 35-50 see also US Ref. US 6,376,797 in col. 3, lines 25-50 for mere facts). Accordingly, it would have been obvious to one of ordinary skill in art to use teaching Sawada in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. MPEP 2144.05.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS ULLAH whose telephone number is (571)272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elias Ullah/
Examiner, Art Unit 2892

/Lex Malsawma/
Primary Examiner, Art Unit 2892